

paper last quoted, as by previous authors; and the object of this note is to direct attention to the support which the extended view argued for by me in the paper above referred to, viz. that the finer markings also correspond to depressions, derives from analogy.

The structure of the Diatomaceæ, and their modes of reproduction, are, as is well known, remarkable;—so much so, that these organisms have been claimed by botanists as members of the vegetable, and by zoologists as belonging to the animal kingdom. The preponderance of evidence is decidedly in favour of their vegetable nature; but, be this as it may, they must all be classed together,—they form a perfectly natural family. Hence we have a strong argument in favour of the markings upon their valves being identical, and as these are evidently depressions in the genera and species with coarsely marked valves (*Isthmia*, &c.), we should expect from analogy that the same would apply to those with finer markings. And this view receives further support, from the fact, that under varied methods of illumination, corresponding appearances are presented by the markings when viewed by the microscope, from those which are very large, as in *Isthmia*, through those of moderate and small size, as in the species of *Coscinodiscus*, down to those in which they are extremely minute, as in the species of *Gyrosigma*, &c. The angular (triangular or quadrangular) appearance assumed by the markings, arises from the light transmitted through the valves being unequally oblique. This may be readily shown in the more coarsely marked valves (*Isthmia*, *Coscinodiscus*), which present the true structural appearance when the light is reflected by the mirror in its ordinary position, and the spurious angular appearance when the light is rendered oblique by moving the mirror to one side.

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#### DESCRIPTIONS OF NEW SPECIES OF BUCCONIDÆ.

By PHILIP LUTLEY SCLATER, F.Z.S.

1. **BUCCO RADIATUS**, Sclater. *B. supra clare ferrugineus, nigro transversim radiatus; nucha et dorso summo pæne omnino nigris; corpore subtus et torque cervicali supra pallide fulvescenti-albis; capitis lateribus, pectore et ventris lateribus lineis nigris transversim radiatis; loris, gula, ventre medio crissoque albis; pedibus nigris; rostro plumbeo.*

Long. tota 8·0; alæ, 3·4; caudæ, 3·0.

*Hab.* in Nova Grenada. Mus. Britannico.

Obs. *B. chacuru* affinis, sed subtus radiatus et rostro plumbeo nec rubro; maculis auricularibus nullis.

2. **BUCCO STRIATIPECTUS**, Sclater. *B. corpore supra nigrescente, alis caudaque magis brunnescentibus, omnino rufescente transversim striatis; capite nigro fere immaculato; mento albo; gutture toto et collo undique fulvo-rufis; pectore et ventris*

*lateribus albis, nigro longitudinaliter striatis; ventre medio albo, crisso fulvescente.*

Long. tota, 7·8; alæ, 3·5.

*Hab.* in Bolivia. Mus. Derbiano.

*Obs.* Species *B. maculato* maxime affinis sed subtus striis nigris nec maculis rotundis aspersa.

3. *MALACOPTILA FULVOGULARIS*, Sclater. *M. capite toto et dorso summo nigris, scapis plumarum clare fulvis; dorso, alis caudaque fuliginoso-brunneis; dorso medio punctis paucis triangularibus fulvis; uropygii plumis anguste fulvo marginatis; cauda immaculata; mento et gutture toto clare fulvis; pectore nigro, scapis plumarum late albis; ventre pallide fulvescente.*

Long. tota 8·5; alæ, 3·7.

*Hab.* in Bolivia. Mus. Derbiano.

Affinis *M. torquata*, Hahn.

4. *MALACOPTILA SUBSTRIATA*, Sclater. *M. supra umbrino-brunnea, capite nigrescentiore; capite et dorso summo longitrorsum fulvo striolatis; dorsi et uropygii plumis rufescentibus, ochraceo anguste marginatis; alis caudaque immaculate cinerascendo-brunneis; loris et mystacibus elongatis, albis; lateribus capitis et corpore infra nigrescentibus, ochraceo et albo late striatis; gula media et pectore toto rufescenti-ochraceis; ventre brunneo et ochraceo-albido confuse mixto; cauda subtus cinerascentiore; rostro pedibusque nigris.*

Long. tota, 7·8; alæ, 3·8; caudæ, 3·8.

*Hab.* in Nova Grenada.

5. *MALACOPTILA ASPERSA*, Sclater. *M. supra fuliginoso-brunnea, dorso rufescentiore; alis caudaque immaculate brunneis; nucha, dorso toto et alarum tectricibus maculis triangularibus, clare fulvis, aspersis; loris albescentibus; regionis auricularis plumarum scapis pallide fulvis; mystacibus et plumis mentalibus rigidis; gula alba; pectore in ferrugineum transeunte; ventre toto crissoque obscure albis, ferrugineo tinctis; pectore et ventris lateribus obsolete fuliginoso-striatis; rostro nigro, mandibula inferiore ad basin flava; pedibus obscure brunneis.*

Long. tota 7·25; alæ, 3·2; caudæ, 3·2.

*Hab.* in Venezuela. Mus. Britannico.

*Obs.* Species præcedenti et *M. mystacati*, Lafr., quasi intermedia; coloribus corporis superi huic, inferioris vero illi approximans.

I am at present acquainted with about thirty-two species of the fissirostral family *Bucconidæ*, of which I believe the five just described to be hitherto unrecognised. Two of them are to be found in the Derby Museum at Liverpool; of two there are specimens in the British Museum: the only example of the *Malacoptila substriata* I have yet seen is in my own collection.

Four natural genera have been constituted in this family, *Bucco*, *Malacoptila*, *Monasa*, and *Chelidoptera*. For the more debile and

passerine form of *Malacoptila*, represented by the *Bucco rubecula*, Spix, and *Lypornix ruficapilla*, Tschudi, I propose the new generic or subgeneric appellation *Nonnulla*, type *N. rubecula* (*Bucco rubecula*, Spix, Av. Bras. i. t. 39. fig. 1, p. 51). The members of this section are much inferior in size to the true *Malacoptilæ*.

DESCRIPTIONS OF SOME NEW SPECIES OF EXOTIC MOTHS  
BELONGING OR ALLIED TO THE GENUS SATURNIA.

By J. O. WESTWOOD, F.L.S. ETC.

Having, in a former Article in this work, ('Annals' for April 1850, p. 290), reviewed the whole of the known species of large African moths belonging or nearly allied to the genus *Saturnia*, and having also, in the "Cabinet of Oriental Entomology," described and figured a number of species of the same group from various parts of India, I purpose in the present paper to describe several additional species, chiefly from the New World, which appears to be very rich in these fine insects. For several of the species contained in this memoir I am indebted to D. Coffin, Esq., who on his return from Mexico most liberally presented me with his whole collection, formed in that country during a residence of considerable extent.

SATURNIA ORIZABA, Westw. *S. alis anticis maris subfalcatis, posticis elongatis; in utroque sexu fulvis, brunneo griseoque variis, omnibus plaga magna triangulari (in omnibus alis equali), apice extus in strigam undatam albam intus nigro marginatam, insidenti, macula subapicali alarum anticarum e guttis tribus nigris composita, linea tenuissima nigra valde undulata submarginali serie macularum parvarum in alis posticis includente.* ♂ ♀

Expans. alar. antic. maris,  $5\frac{1}{4}$  unc.; fœm.  $6\frac{1}{8}$  unc.

Hab. in Mexico. Communicavit D. Coffin. In Mus. Westwood.

This species is closely allied to *Sat. Aurota* (Cramer, pl. 8. fig. A), from Surinam, but differs at once in the form of the vitreous patch of the hind wings.

The general colour is dark fulvous, the middle portion of the wings being darker than the base and apex. The front of the thorax is marked by a narrow transverse white line, and there is a broader transverse one across its hind part, connected with a white streak running in a continuous line along the hind margin of the fore wings for about one quarter of their length, where it forms a strong angle and runs nearly to the costa; it is outwardly edged with black; this is succeeded by the large vitreous patch in the centre of the wings, of a triangular form, the side towards the base of the wing being rather emarginate; and its apex rests upon a white undulated striga running across the wings, edged within with black, beyond which the wing is much irrorated with pale and grey scales, especially towards the costa; near the tip of the wing is a black crescent, and a patch composed of three small black spots in a triangle, on a fulvous ground, preceded by a curved white line; the margin of the wing is ashy buff, traversed by a very slender, very much waved black line.

The hind wings have a similar-sized vitreous patch in the middle, its basal edge being nearly straight, preceded by an arched white line, outwardly edged with black and connected towards the costa with the strongly-waved white line (inwardly edged with black) on which the apex of the vitreous patch rests; the ashy buff margin of the wing bears a series of small black spots, followed by a very slender waved black line.

On the underside the wings have the base of a rich darker brown colour (extending as far as the undulated transverse striga), the apical half of the wings (as well as the costa of the hind ones) being much paler.

The antennæ of the males are not very broadly feathered; they are 32-jointed, each joint emitting four branches of equal length, except about eight of the terminal joints, in which one of the pairs of branches gradually diminishes in length, and becomes obsolete in two or three of the terminal joints. The antennæ of the female are less strongly feathered, and one of the pairs of branches becomes obsolete in about seven of the terminal joints.

SATURNIA ZACATECA, Westw. *S. alis valde angustis subfalcatis nigris, omnibus macula maxima vitrea, anticis striga basali geniculata alba, ad apicem fulvo, castaneo griseoque variegatis, fascia interrupta alba extus rufescenti; posticis nigris, prope marginem posticum fascia interrupta alba extus castaneo-rufa, margine postico griseo variegato.* ♂

Expans. alar. antic. unc.  $3\frac{5}{8}$ .

*Hab.* in Bogota, Americæ Meridionalis. In Mus. Hope.

This curious species is at once distinguished by its very narrow wings and the large size of the glassy spots, especially in the hinder pair; the body is black, with a white ring round the neck and a less distinct fascia across the hind part of the thorax. The antennæ are very strongly branched; the fore wings are especially long and narrow and slightly falcate at the tip, which is rounded; they are of a black colour, slightly tinged with chestnut, and powdered, especially along the fore margin, with grey scales. A narrow, straight, white striga extends from the base of the wing to the vitreous spot, where it is angulated, and runs towards the fore margin. The centre of the wing is occupied by a large, elongated, suboval heptagonal vitreous spot, which is not traversed by any transverse vein, the branches of the median vein being pushed so far backward, as to admit of its occupying so large a clear space; a narrow white fascia extends from its extremity to the costa, and from the middle of its hinder margin to the hind margin of the wing, the space between which and the apical margin is varied with chestnut, red and grey scales and luteous patches. The tip of the wing is orange, with a chestnut patch and a white angulated line, below which is a large oval chestnut-red patch, bearing a black spot and divided into several parts by dark luteous lines. The hind wings are almost entirely occupied by a large oval glassy patch destitute of veins, the subcostal vein being pushed towards the costal margin, and the median one towards the anal margin, and their

branches emitted at an unusual distance from the base of the wing; the apical portion is coloured in the same way as in the fore wings, except that the luteous spots form a narrow, continuous, submarginal fascia, enclosing a series of transverse, black spots more or less united in pairs.

**SATURNIA JORULLA**, Westw. *S. alis fulvo-fuscis; anticis macula subtriangulari, posticis macula subovali, vitreis albo nigroque marginatis, striga angulata e basi ad costam anticarum, alteraque multidentata (communi) pone medium albis nigro roseoque marginatis; striga tenui, nigra, undata, subapicali, macula tripartita, nigra versus apicem connexa; posticis serie submarginali macularum rosearum, extus linea undata, nigra e margine griseo separata.* ♂ ♀

Expans. alar. antic. maris, unc. 4.

*Hab.* in Mexico, Cuantla. E folliculo in mense Octobris invento imago prodiit Augusto sequente. Communicavit D. Coffin. In Mus. Westwood.

This species is allied to *Saturnia Hesperus* (Cramer, pl. 68. fig. A), but is smaller, and has the dentated fascia of the fore wings extending in a straight line entirely across them; it is also much more brightly coloured. Both sexes have the fore wings emarginate along the outer margin, those of the female being rather less so than those of the male. The general colour of the wings is tawny brown; the fore wings with the fore margin thickly clothed with grey scales being white towards the base; the front of the thorax has a continuous white band; another extends also across the hind part of the thorax, and is continued by a white bar along the wing for about one-third of its length, where it is angulated, and extends nearly to the costa; it is inwardly edged with bright rosy, and outwardly in part with black; the vitreous patch which occupies the middle of the wing is subtriangular, having a narrow white margin succeeded by a wider black one. This spot is followed by a multidentate white striga, edged with black on the inside and with rosy red on the out, running nearly in a straight direction across the wing, and extending also in a curved one across the hind wings to the anal margin. This striga is followed in both wings by a rather wide space much powdered with grey atoms, except towards the costa, which is more ashy coloured; the dull luteous margin is traversed by a slender, wavy, black line, followed by a white band, and towards the tip of the fore wings is a black patch, outwardly dentate, succeeded by two smaller black ones edged with tawny, and a short curved and dentated white line extends to the tip of the wing.

The hind wings are very similar to the fore ones, having near the base a slightly curved white streak outwardly edged with black, followed by a nearly oval vitreous spot, edged with white and black, slightly larger than the spot of the fore wings; and the luteous margin of these wings bears a slender wavy black line, preceded by a row of small rosy and black spots.

The wings on the under side are coloured exactly as on the upper,

except that the costa of the hind wings is narrowly white. The antennæ of the males are but moderately feathered: they are about 30-jointed, each joint producing two branches of equal length on either side, except that in the eight or nine terminal joints one of the pairs of branches is gradually obsolete, being entirely wanting in the six last. The antennæ of the female resemble those of the male, but are rather less strongly feathered.

SATURNIA LAVENDERA, Westw. *S. alis flavis, basi obsolete fusco-strigosis; omnibus ocello parvo ovali (fere æquali) livide carneo, medio vitreo, nigro tenue cincto, anticis pone medium strigis duabus tenuibus undulatis valde obliquis, fascia lata fulvo-brunnea extus undulata maculaque parva nigra subapicali; posticis striga ante medium integra, alteraque pone medium dentata nigris serieque subapicali lunularum fulvo-brunnearum.* ♀

Expans. alar. antic. fœm. unc.  $4\frac{3}{5}$ .

*Hab.* in Mexico. E larva magna viridi spinosa mense Junio in truncum populi capta imago mense sequenti producta. Communicavit D. Coffin. In Mus. Westwood.

Of this handsome species I am only acquainted with female specimens, varying in the more or less golden yellow tint of the ground colour of the wings, which are thickly irrorated with small blackish scales. The anterior pair have the fore margin (as well as the front of the thorax) grey. They are rather dusky near the base and next the costa. There is a dusky spot followed by a short transverse black bar, which is connected with a scarcely distinct waved oblique striga extending to the inner margin. In the middle of the wing is an oval rosy-liver-coloured ocellus, the centre vitreous, surrounded by a black ring, resting on the outside on a very oblique waved black line, which is followed by another, broader but rather less waved, and this is succeeded by a broad space of reddish brown irrorated with grey scales, deeply scalloped along its outer margin. Near the tip of the wing is a black spot, below which is a slender black longitudinal line.

The hind wings are rather dusky at the base, with a nearly straight blackish streak running across them rather before the middle. The ocellus on these wings is sometimes rather larger than that of the fore wings, and in other specimens is united with the transverse blackish bar; beyond the ocellus is a slender dentated blackish line, followed at a short distance by a second, less distinct, and which forms the fore margin of a row of submarginal broad reddish brown lunules.

The antennæ of the females are but moderately feathered; they are 31-jointed, each joint only producing a single branch on each side, the place of the two wanting branches being indicated by two minute bristles in their stead; the branches gradually decrease in length, from about one-third of the length of the antennæ to the tip.

SATURNIA CALLETA, Westw. *S. alis nigricanti-fuscis, omnibus in medio macula angulata strigaque communi integra inter medium et apicem albis notatis; anticis striga angusta angulata versus basin, ocello nigro extus ferrugineo serieque lunularum nigrarum sub-*

*apicalibus; posticis serie subapicali macularum nigrarum lineaque tenui undata nigra.* ♂ ♀

Expans. alar. antic. maris, unc.  $4\frac{3}{4}$ ; fœminæ, unc.  $5\frac{1}{2}$ .

*Hab.* in Mexico. E pupa mense Augusti producta. Communicavit D. Coffin. In Mus. Westwood.

This very distinct species is at once distinguished by the black-brown colour of its wings, marked in the place of the ordinary ocellus with an angulated white mark, like a wide prostrate V. The female is considerably larger than the male, and has broader wings, the anterior being nearly straight along the apical margin, and the hind ones shorter and wider. The thorax has a pale fleshy coloured fascia in front, and the hind part has a less distinct one of dull fulvous; towards the base of the wing is an angulated white striga, and all the wings are marked in the middle with the above-mentioned angulated white mark; half way between which and the outer margin of the wings is a white fascia with the edges entire, rather wider in the hinder wings, followed by a space which is much irrorated with grey and fulvous scales, especially in the hind wings, but becoming more uniformly ashy towards the costa of the fore wings. This space incloses in the fore wings ten slender black lunules arranged in pairs, each pair united together above by a more strongly marked black lunule, edged towards the apical margin with white. The anterior pair of lunules is followed towards the costa by a black ocellus bearing a slender white arched line, and outwardly bearing a broad ferruginous border, and next the apical angle are two white arched lines resting in the middle on a ferruginous patch; the dull luteous apical margin inwardly becomes paler, and is preceded by a slender waved black line; the uniformly dull luteous margin of the hind wings bears a row of small black oval spots, followed by a slender slightly-waved black line. The underside is coloured and marked as above, except that the subapical markings are all more clearly defined.

The antennæ of the males are deeply feathered; they consist of about 30 joints, each emitting a pair of setose branches on either side, except the six terminal joints, which are extremely short, each only emitting a single very short branch on its upper side. In the female antennæ the branches extend (gradually diminishing in length) to the tip, but in the eight terminal joints one of the branches on each side becomes gradually obsolete, being quite wanting in the five terminal joints.

SATURNIA CHAPATA, Westw. *S. alis roseo-fulvis anticarum costa colloque griseis, omnibus ocello medio, magnitudine mediocri, æquali, medio vitreo, intus hepatico, extus flavo, circuloque fusco cincto; anticis striga recta valde obliqua pone medium fusca, macula parva nigra subapicali adjecta.* ♂

Expans. alar. antic. maris, unc.  $4\frac{1}{8}$ .

*Hab.* in Mexico. Communicavit D. Coffin. In Mus. Westwood.

My unique specimen of this species is a male, and having been reared from the larva, its hind wings are not quite fully expanded. The fore wings are more strongly falcate than in any of the other

Mexican species described in this article. The ground colour of all the wings is a rich rosy fulvous, with slight brown shades across the middle of the fore wings. The fore margin of these wings, as well as the front of the thorax, is greyish; half way between the base and the middle is a very ill-defined and irregularly angulated dusky striga; in the middle of all the wings is a moderate-sized oval ocellus, being of the same size in all the wings, the centre vitreous, the anterior part being liver-coloured, and the outer part gradually yellow, surrounded by a narrow dusky circle; half way between the ocellus and the apical margin runs a straight but very oblique dusky striga, extending from rather beyond the middle of the hinder margin nearly to the apex of the wing, where it is dilated into a small black patch. The hind wings have a more rosy tint, with a transverse, very ill-defined, dusky striga a little in front of the ocellus, and there is a slender undulated dusky striga half way between the ocellus and the hinder margin.

On the under side the wings are rather more ashy in their general colour, and the dusky stripe between the base and the ocellus in all the wings is better defined; across all the wings there is a central cloud of tawny running through the ocelli, which are smaller on this side than above, and beyond these marks is a very slight and slender row of dusky scallops; the subapical margin of the fore wings is more tawny, especially towards the hinder angle. The antennæ are fulvous and broadly feathered, consisting of about 30 joints, each emitting two branches on either side.

SATURNIA SAPATOZA, Westw. *S. alis supra viridi-sulphureis, nigro-atomosis; anticis in mare subfalcatis; omnibus lunula vitrea mediocri, æquali, anticis fascia obscura parum undata inter basin et medium, alteraque undulata inter lunulam et marginem apicalem; puncto nigro subapicali; posticis striga transversa media lunulisque subapicalibus obscuris.* ♂ ♀

Expans. alar. antic. unc.  $3\frac{1}{2}$ .

*Hab.* in Bogota. In Mus. Britann.

This beautiful species is one of the smallest of its tribe, and is well distinguished by its peculiar colour and by the form of the lunate vitreous patch, of nearly equal size on all the wings. The wings are sulphur-yellow-coloured above, the disk covered with minute black scales, which give it a greenish tinge; fore wings with the extremity slightly falcate in the male, more regular shaped in the female, brownish buff, with a small subapical black oval dot, edged behind with an angulated white line. All the wings marked rather beyond the middle with a lunate vitreous spot, of equal size in all the wings, narrowly edged with black and with a slender curved vein (uniting the lower branch of the subcostal with the upper branch of the median veins) running through the centre of it; the fore wings moreover with a slightly waved dusky fascia before the middle and a slender waved subapical dark striga (much more strongly marked in the female than in the male), adjoining which, on the outside, is a narrow wave, paler than the ground colour of the wing, the terminal por-



tion of the wing being duller coloured than the disc, and irrorated in both sexes towards the hinder angle with brown scales. Hind wings entire along the outer margin, with a nearly straight dusky striga running across the centre a short distance preceding the vitreous lunule, with a slender waved lilac-brown striga half way between the lunule and the outer margin, and with a series of submarginal brown curved streaks, followed by patches of flesh-coloured scales. On the underside the male has the wings chestnut-grey, the disc more strongly suffused with red, with the striga and waved lines of the upper side slightly indicated; the female on the underside is greyish buff slightly shaded with brown, especially in the middle, with the dark markings of the upper side slightly indicated, the legs flesh-coloured. The antennæ of the male are short and about 26-jointed, each of the joints (except two or three at the tip) emitting four long branches. The female antennæ are 25-jointed, each joint emitting a short branch on each side at its extremity. The female has the branches of the antennæ shorter than those of the male.

SATURNIA JANEIRA, Westw. *S. alis anticis apice acuminatis brunneo-ferrugineis, striga sub-basali interrupta lutescenti, ocello fusco luteo-annulato strigaeque nigra e medio marginis interni ad apicem extensa; posticis supra castaneo-rufis, margine postico fusco ocello magno concolori maculam ovalem nigram includente fulvoque extus annulato.*

Expans. alar. antic. unc.  $3\frac{2}{3}$ .

*Hab.* apud Rio Janeiro, Brasilæ. In Musæo Britannico.

This species is at once distinguished by the singularly acute falcated form of the fore wings, which peculiarity is probably less strongly marked in the female; supposing as I do that the unique specimen in the British Museum is a male, although the comparatively narrow antennæ might seem to indicate the opposite sex. The fore wings on the upper side are dark rich red-brown, the apical margin being dark ashy. They are marked near the base with a much-interrupted and slightly-indicated luteous striga; in the middle is a moderate-sized oval ocellus, dark brown, surrounded by a slender ring of pale luteous scales, and with a very small greyish white lunule in the middle; beyond the ocellus is a regular black line running from the apex to a little beyond the middle of the inner margin, where it is marked with a few pale scales. Hind wings on the upper side rich chestnut-red, with the outer margin brown, and clothed with brown hairs along the anal margin; in the middle is a large ring of black, outside of which is a slender circle of fulvous scales, and in the centre is a rather small oval black spot crowned with a slight white lunule. On the under side the wings are dark fulvous-red, with a dusky apical margin, the fore wings with a black central circular spot inclosing a white dot, and the hind wings with a minute white transverse dot visible on the upper side in the centre of the large ocellus. The antennæ are short, 26-jointed, each joint (except three or four of the terminal ones) emitting four moderately short branches, gradually shortening towards the tip.

This species seems to approach near, if indeed it does not belong to the subgenus *Hyperchiria* of Hübner (Verzeichniss, p. 155), *Io*, Boisduval, the species of which are especially American. The transformations of one of the species (*Saturnia Metzli* from Mexico) have been recently illustrated by M. Sallé, in the 'Revue de Zoologie,' 2nd series, tom. v. (1853) p. 171. pl. 5.

SATURNIA? PLUTO, Westw. *S. alis luridis, cinereo-fuscis, fusco badioque transversim subfasciatis, absque ocellis et lunulis vitreis, anticis sub apicem emarginatis; posticis elongatis et in caudam latam mediocrem extus oblique extensam, productis.*

Expans. alar. antic. unc. 5.

*Hab.* in partibus calidioribus Americæ Meridionalis, Venezuela. In Mus. Westw.

The general colour of the wings of this species is dark brown, with a purplish leaden kind of gloss; the fore wings are traversed towards the base (which is of a rich chestnut colour) by two nearly straight chestnut fasciæ, followed by a shorter one of the same colour covering the transverse veinlets at the extremity of the discoidal cell, a short distance beyond which is another straight fascia of the same colour; half way between which and the tip of the wing are two dull sooty fasciæ, diffused towards the costa, and condensed in the middle of the wing into two closely approximated strigæ; beyond the outer of these strigæ the broad margin of the wing is chestnut-brown, the spaces between the veins being of a greyer tint; the hind wings are of a more uniform brown colour, with a broad darker brown central fascia, and the wide outer margin redder brown, preceded by a greyish cloud. The fore wings are somewhat falcate, being truncate at the tip, with a rather deep emargination below the extremity; the hind wings are elongated, the anal angle rounded off, and the outer margin is produced into a wide tail three-quarters of an inch long, extending outwardly; the outer margin between the tail and the outer angle has two moderately deep and wide emarginations. The body is small and slender, of an uniform greyish brown colour, without a distinctly coloured grey fascia in front of the thorax.

The antennæ in the only specimen I have seen (which I believe is a female, notwithstanding the slenderness of the body) are rather short, and composed of forty-two short joints, each producing two short pectinations on each side; these pectinations gradually decrease in length from the base to the extremity, where the antennæ are quite thin and acute. The palpi are rather broad, and the spiral maxillæ are distinct, but very slender and weak.

The costal vein of the fore wings extends about three-fifths of the length of the costa; the postcostal vein emits a branch at about one-third of the length of the wing, which runs close behind the costal and beyond it almost to the tip of the wing; the discoidal cell extends rather more than one-third of the length of the wing; it terminates transversely, the postcostal vein emitting a second branch at its anterior termination; this second branch is furcate at a short distance beyond the cell, the upper division of the fork extending to

the tip, the lower division to the outer margin below the tip, and the postcostal itself extending to the upper angle of the emargination below the apical truncature of the wing; the transverse vein closing the discoidal cell emits a vein from its centre, and joins the third branch of the median vein at a short distance beyond its origin; the hind wings have the branches of the median vein arising near the anal margin of the wing, and the discoidal cell is closed by a very oblique veinlet, which emits a vein above its middle, which vein extends to the anterior extremity of the tail of these wings.

**SATURNIA THIBETA**, Westw. *S. alis anticis flavis, squamis griseis, præsertim pone medium, variegatis, striga angusta valde obliqua prope basin; omnibus ocello fere æquali, ovali, medio, extus fulvo, puncto nigro incluso; pone medium lineis duabus contiguis valde undulatis, macula parva nigra obliqua strigaeque carnea obliqua contigua, subapicalibus; posticis basi subcarneo, medio flavo variegatis, striga arcuata inter basin et medium lineisque tribus obscurioribus pone ocellum, fascia lata submarginali griseo-fusca lunulisque fulvis externis.* ♂

Expans. alar. antic. unc. 5.

*Hab.* Thibet. In Mus. Westwood.

This species is closely allied to the *Sat. Simla*, Westw., figured in the 'Cabinet of Oriental Entomology,' pl. 20. fig. 1, but differs both in the colour and the position of the markings. The fore wings are yellow, much varied with grey scales, especially at the base of the costa and beyond the middle: at a short distance from the base a slender red striga runs very obliquely across the wing. In the middle of all the wings is a moderate-sized oval ocellus, with a small black dot in the middle, marked on its inner edge with a curved white line, the outer part being liver-coloured, edged with a black ring. Outside the ocellus the wings bear a darker fulvous, ill-defined, very oblique fascia, followed by two slender very strongly undulating dark lines; the undulations being much stronger towards the tip of the wing, where the outer one is connected with a white curved line, like a U, which ends on the costa in an oval black patch, and is bounded on its outside by a slender rich red-brown line; parallel and near the apical margin is an interrupted slender black striga, followed by a row of submarginal fulvous oblong spots. The ocellus of the hind wings is preceded by a curved dark brown line, and is followed by three slender very much undulated lines, the two next the ocellus being chestnut and the outer one black; beyond the last is a broad greyish fascia edged outwardly with a slender interrupted black line, followed by a row of fulvous oblong sublunulated spots. Beneath the wings are similarly marked but more uniformly coloured, being fulvous buff without the grey scales.

The antennæ are about 32-jointed, each joint emitting two branches on each side, the branches of the central joints being moderately elongate and gradually diminishing in length to the tip of the antennæ. The body, legs and antennæ are fulvous yellow, the front of the thorax with a grey band.

SATURNIA MELVILLA, Westw. *S. alis sulphureo-fulvis, anticis versus basin obscure angulato-fasciatis ocello parvo medio rotundato in medio vitreo carneo bicingulato, fascia lata subcinerea intus striga undata fusco-ferruginea et extus serie macularum ejusdem coloris inclusa; posticis ocello minimo caco carneo, fascia subcinerea versus costam oblitterata similiter inclusa.* ♂

Expans. alar. maris unc.  $4\frac{1}{2}$ .

Hab. in Melville Island. In Mus. Hope.

This species agrees in the general orange colour of its wings with *S. Lavendera*, as well as in the small size of the round ocelli in the middle of all the wings; but the slightly ashy fascia on the wings, between the ocellus and the apical margin, is much more uniform in width and nearly straight; the fore wings are slightly but acutely hooked at the tips; the fore margin is ashy-coloured, as is also the fore margin of the thorax; in the middle of the discoidal cell is a scarcely distinct light-brown angulated fascia, which is continued (although much nearer the base) across the wing to the inner margin, being also angulated in this portion; in the middle of the wing is a small round ocellus, the centre being vitreous, edged with bright red, succeeded by a ring of buff, which is surrounded by another slender ring of red; at a short distance beyond the ocellus is a reddish brown undulated striga running across the wing, nearly parallel with the apical margin, the waves following the same direction as in *S. Lavendera*, and not as in *S. Jorulla*; this striga forms the inner margin of a moderately wide greyish fulvous space, which is inclosed on its outside by a corresponding row of reddish brown lunular spots, the one next the costa being the widest; the moderately wide apical margin is uniformly pale orange. The hind wings have a very indistinct curved fascia at some distance from the base, darkest next the anal margin, as is the case with the other markings of these wings. The central ocellus is not above half the size of that of the fore wings; the centre consists of a small round bright claret-red dot inclosed within an orange ring, and this within a very fine red one. This is followed by a rather strongly dentated striga of reddish brown, followed by a row of small lunular spots of the same colour, the inclosed space being irrorated with grey atoms.

The antennæ are fulvous-red and broadly feathered.

#### LINNEAN SOCIETY.

April 4, 1854.—Thomas Bell, Esq., President, in the Chair.

Read a paper entitled "Remarks relative to the Affinities and Analogies of Natural Objects, more particularly of *Hypocephalus*, a genus of *Coleoptera*." By John Curtis, Esq., F.L.S. &c.

Mr. Curtis commences his paper by a reference to the numerous attempts made of late years to establish a perfectly natural system, which, he believes, will never be attained. In our progress towards the establishment of such a system, we are sure to find disturbing forces, producing aberrant types of form, which, like discordant